

```
%%R
# Load dataset
data <- read.csv("/content/HousingData.csv")
# Display first few rows
```

```
head(data)
```

```

CRIM  ZN  INDUS  CHAS    NOX     RM   AGE     DIS  RAD  TAX  PTRATIO      B  LSTAT
1  0.00632  18    2.31    0  0.538  6.575  65.2  4.0900  1  296    15.3  396.90  4.98
2  0.02731   0    7.07    0  0.469  6.421  78.9  4.9671  2  242    17.8  396.90  9.14
3  0.02729   0    7.07    0  0.469  7.185  61.1  4.9671  2  242    17.8  392.83  4.03
4  0.03237   0    2.18    0  0.458  6.998  45.8  6.0622  3  222    18.7  394.63  2.94
5  0.06905   0    2.18    0  0.458  7.147  54.2  6.0622  3  222    18.7  396.90   NA
6  0.02985   0    2.18    0  0.458  6.430  58.7  6.0622  3  222    18.7  394.12  5.21

MEDV
1  24.0
2  21.6
3  34.7
4  33.4
5  36.2
6  28.7

```

```

%%R
# Creating a word cloud for RAD (accessibility to radial highways)
rad_count <- table(data$RAD) # Count frequencies for RAD
wordcloud(names(rad_count), freq = as.vector(rad_count), min.freq = 1, scale = c(8, 1),
          colors = brewer.pal(8, "Dark2"))

```

```

# Adding title
title("Word Cloud for RAD (Accessibility to Radial Highways)")

```



Word Cloud for RAD (Accessibility to Radial Highways)

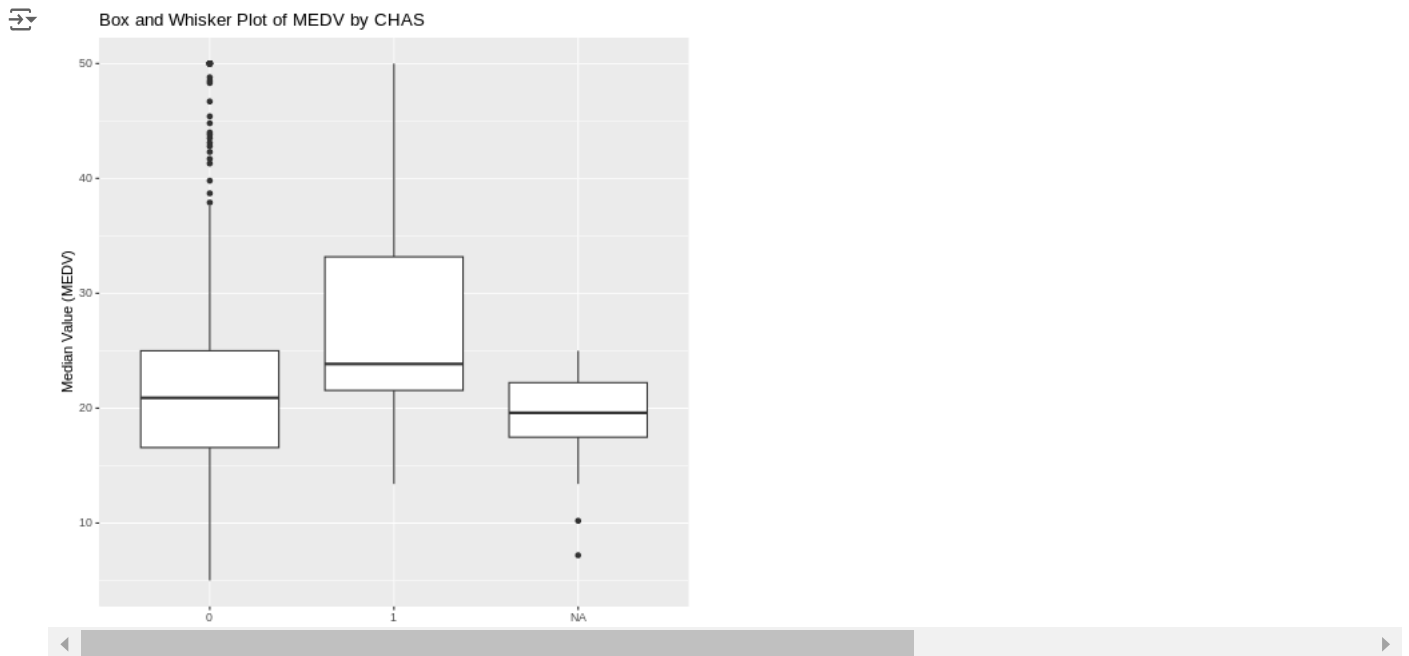


Observation : This word cloud will visually show the distribution of houses across different levels of accessibility to radial highways. The larger the word, the more houses in that category.

```

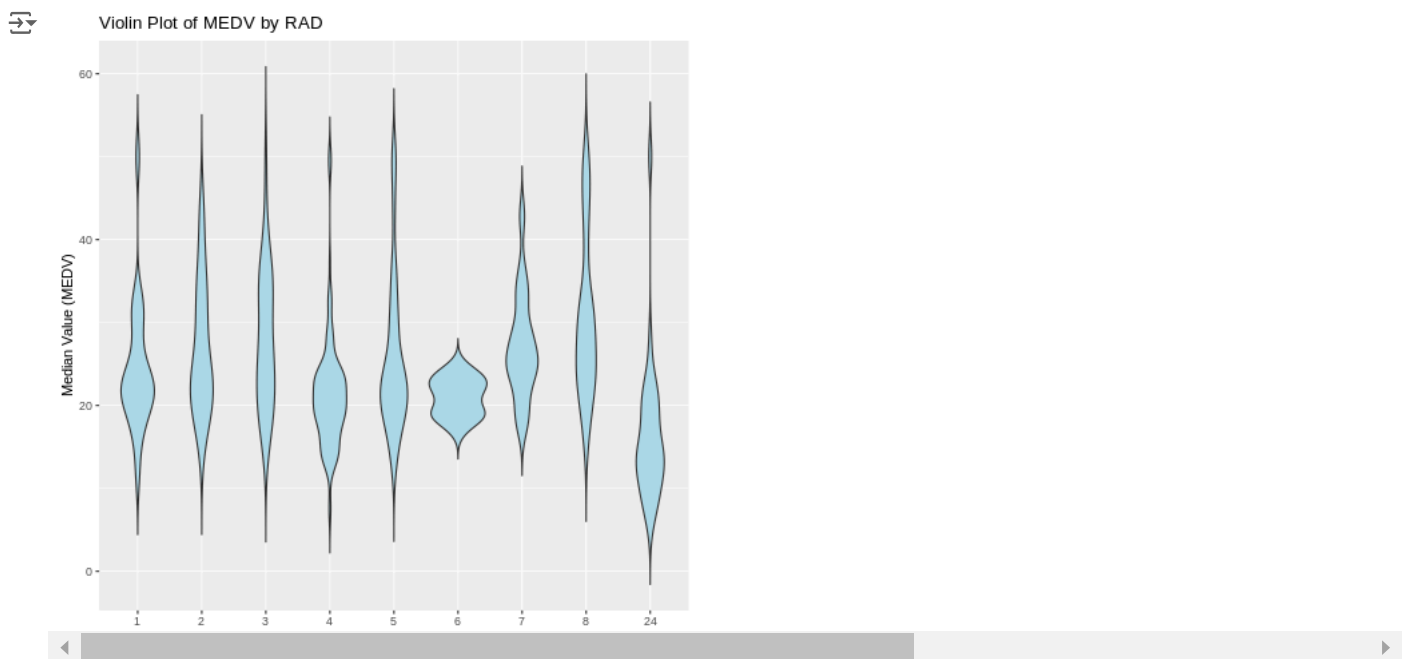
%%R
# Boxplot of MEDV by CHAS
ggplot(data, aes(x = factor(CHAS), y = MEDV)) +
  geom_boxplot() +
  xlab("CHAS") +
  ylab("Median Value (MEDV)") +
  ggtitle("Box and Whisker Plot of MEDV by CHAS")

```



Observation : The boxplot will show how house prices differ between properties that are and aren't adjacent to the Charles River.

```
%%R
# Violin plot of MEDV by RAD
ggplot(data, aes(x = factor(RAD), y = MEDV)) +
  geom_violin(trim = FALSE, fill = "lightblue") +
  xlab("RAD") +
  ylab("Median Value (MEDV)") +
  ggtitle("Violin Plot of MEDV by RAD")
```



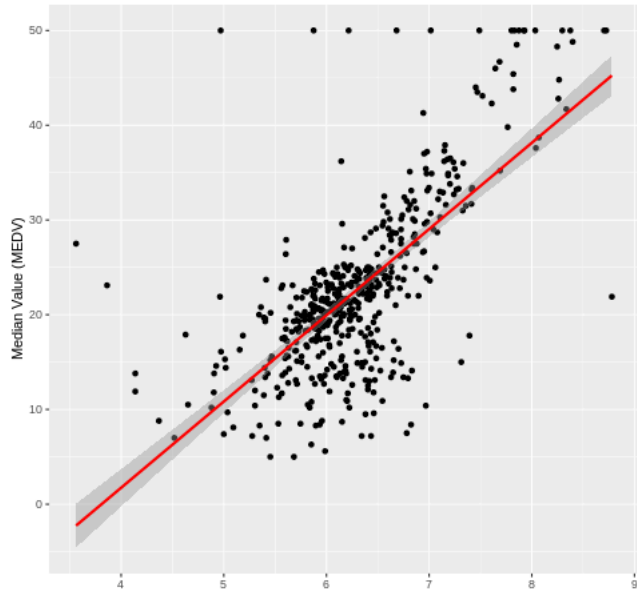
Observation : The violin plot gives a more detailed distribution of home prices based on accessibility to highways.

```
%%R
# Linear regression plot of MEDV and RM
ggplot(data, aes(x = RM, y = MEDV)) +
  geom_point() +
  geom_smooth(method = "lm", col = "red") +
  xlab("Average Number of Rooms (RM)") +
  ylab("Median Value (MEDV)") +
  ggtitle("Linear Regression of MEDV vs. RM")
```

```

`geom_smooth()` using formula = 'y ~ x'
Linear Regression of MEDV vs. RM

```



Observation : A positive linear relationship can be observed between the number of rooms and the median house value.

```

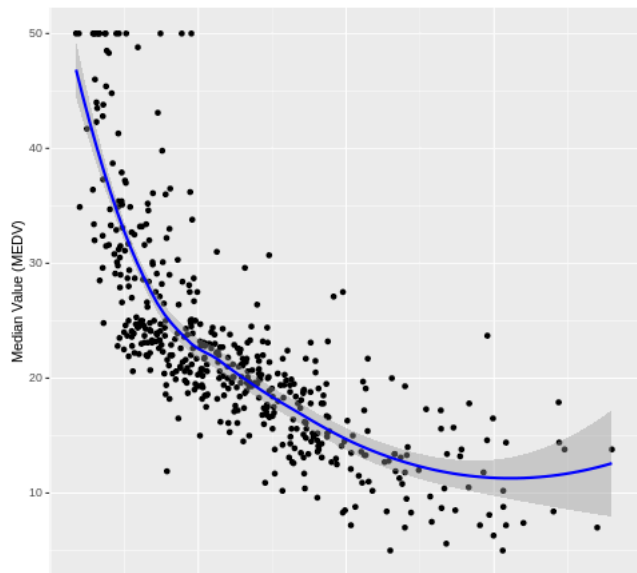
%%R
# Non-linear regression plot of MEDV and LSTAT
ggplot(data, aes(x = LSTAT, y = MEDV)) +
  geom_point() +
  geom_smooth(method = "loess", col = "blue") +
  xlab("Lower Status Population (LSTAT)") +
  ylab("Median Value (MEDV)") +
  ggtitle("Non-Linear Regression of MEDV vs. LSTAT")

```

```

`geom_smooth()` using formula = 'y ~ x'
Non-Linear Regression of MEDV vs. LSTAT

```



Observation : The non-linear regression shows a decreasing trend between LSTAT and MEDV, indicating lower-priced houses in areas with a higher percentage of lower-status population.

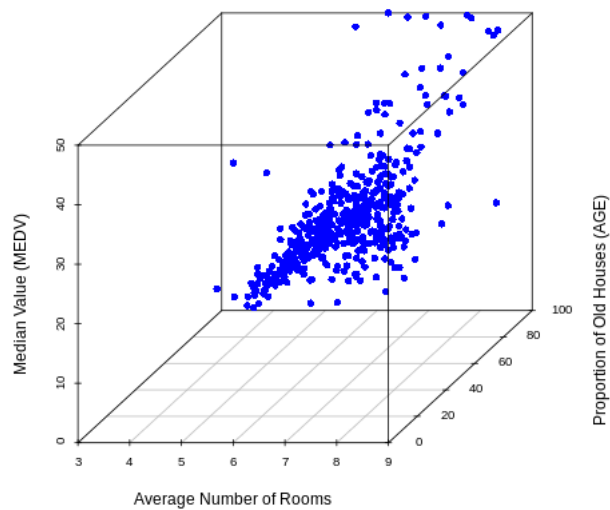
```

%%R
# 3D scatter plot
scatterplot3d(data$RM, data$AGE, data$MEDV, pch = 16, color = "blue",
  xlab = "Average Number of Rooms",
  ylab = "Proportion of Old Houses (AGE)",
  zlab = "Median Value (MEDV)",
  main = "3D Scatter Plot of RM, AGE and MEDV")

```



3D Scatter Plot of RM, AGE and MEDV



Observation : The 3D plot helps identify relationships between the number of rooms, the age of houses, and house values.

```
%%R
# Jitter plot of TAX and MEDV
ggplot(data, aes(x = TAX, y = MEDV)) +
  geom_jitter(width = 0.5, height = 0.5, color = "darkred") +
  xlab("Tax Rate") +
  ylab("Median Value (MEDV)") +
  ggtitle("Jitter Plot of TAX and MEDV")
```



Jitter Plot of TAX and MEDV



Observation : The jitter plot spreads out data points to better visualize clusters or dense areas in the tax rates and house values.

Start coding or [generate](#) with AI.